

## Title (en)

Cationic compounds, their use for the oxidation dyeing of keratinous fibres, dyeing compositions and dyeing methods

## Title (de)

Kationische Verbindungen, deren Verwendung zum oxidativen Färben keratinischer Fasern, Färbemittel und Färbverfahren

## Title (fr)

Nouveaux composés cationiques, leur utilisation pour la teinture d'oxydation des fibres kératiniques, compositions tinctoriales et procédés de teinture

## Publication

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## Application

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## Priority

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## Abstract (en)

Cationic bis-o-phenylenediamine derivatives (I) are new. Compounds of formula (I) and their acid-addition salts are new. B = alkylene optionally interrupted by one or more Z groups and/or heteroatoms and optionally substituted by OH, 1-6C alkoxy and/or oxo; R<sup>1</sup>-R<sup>3</sup>, R<sup>1'</sup>-R<sup>3'</sup> = bonds to B, H, halogen, Z, COA, COA'NH<sub>2</sub>, COA'NHZ, COA'NHA, COA'NA<sub>2</sub>, A'COA'NH<sub>2</sub>, A'COA'NHZ, A'COA'NHA, A'COA'NA<sub>2</sub>, COOH, COOA, SO<sub>2</sub>A, SO<sub>2</sub>NH<sub>2</sub>, SO<sub>2</sub>NHZ, SO<sub>2</sub>NHA, SO<sub>2</sub>NA<sub>2</sub>, A'SO<sub>2</sub>NH<sub>2</sub>, A'SO<sub>2</sub>NHZ, A'SO<sub>2</sub>NHA, A'SO<sub>2</sub>NA<sub>2</sub>, CONH<sub>2</sub>, CONHA, CONA<sub>2</sub>, A'CONH<sub>2</sub>, A'CONHA, A'CONA<sub>2</sub>, A, A'OH, 2-6C polyhydroxyalkyl, A'OA, A", CN, OR<sub>6</sub> or SR<sub>6</sub>; or an amino group protected by COA, COOA, COA", COA'NH<sub>2</sub>, COA'NHZ, COA'NHA, COA'NA<sub>2</sub>, CONH<sub>2</sub>, CONHA, CONA<sub>2</sub>, SO<sub>2</sub>A, SO<sub>2</sub>NH<sub>2</sub>, SO<sub>2</sub>NHZ, SO<sub>2</sub>NHA, SO<sub>2</sub>NA<sub>2</sub>, CSNH<sub>2</sub>, CHO or Z'; A = 1-6C alkyl; A' = 1-6C alkylene; A" = 1-6C trifluoroalkyl; R<sub>6</sub> = a bond to B, A, A'OH, 2-6C polyhydroxyalkyl, Z, A'OA, aryl, benzyl, A'COOH, A'COOA, A'CN, A'CONH<sub>2</sub>, A'CONHA, A'CONA<sub>2</sub>, A", A'SO<sub>2</sub>NH<sub>2</sub>, A'SO<sub>2</sub>NHZ, A'SO<sub>2</sub>NHA, A'SO<sub>2</sub>NA<sub>2</sub>, A'SOA, A'SO<sub>2</sub>A, A'COA or A'NH<sub>2</sub>; or 1-6C aminoalkyl N-substituted by 1 or 2 of A, A'OH, 2-6C polyhydroxyalkyl, COA, CHO, COA", COOA, CONH<sub>2</sub>, CONHA, CONA<sub>2</sub>, CSNH<sub>2</sub>, SO<sub>2</sub>A and Z; R<sub>4</sub>-R<sub>8</sub>, R<sub>4'</sub>-R<sub>8'</sub> = bonds to B, H, Z, A, A'OH, 2-6C polyhydroxyalkyl, Z, A'OA, aryl, benzyl, A'COOH, A'COOA, A'CN, A'CONH<sub>2</sub>, A'CONHA, A'CONA<sub>2</sub>, A", A'SO<sub>2</sub>NH<sub>2</sub>, A'SO<sub>2</sub>NHZ, A'SO<sub>2</sub>NHA, A'SO<sub>2</sub>NA<sub>2</sub>, A'SOA, A'SO<sub>2</sub>A, A'COA or A'NH<sub>2</sub>; or 1-6C aminoalkyl N-substituted by 1 or 2 of A, A'OH, 2-6C polyhydroxyalkyl, COA, CHO, COA", COOA, CONH<sub>2</sub>, CONHA, CONA<sub>2</sub>, CSNH<sub>2</sub>, SO<sub>2</sub>A and Z; Z = a group of formula (i)-(iii): D = alkylene optionally interrupted by one or more heteroatoms and optionally substituted by OH, 1-6C alkoxy and/or oxo; E, G, J, L, M = C, O, S or N; n = 0-4; m = 0-5; R = bonds to B, Z, halogen, OH, A, A'OH, 2-6C polyhydroxyalkyl, NO<sub>2</sub>, CN, A'CN, OA, A'SiA<sub>3</sub>, CONH<sub>2</sub>, CHO, COOH, COA, SH, A'SH, SA, NH<sub>2</sub>, NHCOA, NHCONH<sub>2</sub>, NHSO<sub>2</sub>A, NHR or NRR'; R, R' = A, A'OH or 2-6C polyhydroxyalkyl; R<sub>9</sub> = a bond to B, A, A'OH, 2-6C polyhydroxyalkyl, A'CN, A'SiA<sub>3</sub>, A'OA, A'CONH<sub>2</sub>, A'COOA, benzyl or Z; R<sub>10</sub>-R<sub>12</sub> = bonds to B, A, A'OH, 2-6C polyhydroxyalkyl, A'OA, A'CN, aryl, benzyl, A'CONH<sub>2</sub>, A'SiA<sub>3</sub>, A'NHCOA, A'NHCONH<sub>2</sub> or A'NHCO<sub>2</sub>A; or two of R<sub>7</sub>-R<sub>9</sub> form a 5- or 6-membered ring optionally substituted by halogen, OH, A, A'OH, 2-6C polyhydroxyalkyl, NO<sub>2</sub>, CN, A'CN, OA, A'SiA<sub>3</sub>, CONH<sub>2</sub>, CHO, COOH, COA, SH, A'SH, SA, NH<sub>2</sub>, NHCOA, NHCONH<sub>2</sub> or NHSO<sub>2</sub>A; or one of R<sub>10</sub>-R<sub>12</sub> can be Z; R<sub>13</sub> = a bond to B, A, A'OH, 2-6C polyhydroxyalkyl, aryl, benzyl, A'NH<sub>2</sub>, A'NHCOA, A'NHCONH<sub>2</sub>, A'NHCO<sub>2</sub>A, A'COOH, A'CN, A'CONH<sub>2</sub>, A", A'SiA<sub>3</sub>, A'SO<sub>2</sub>NH<sub>2</sub>, A'COOA, A'SOA, A'SO<sub>2</sub>A, A'COA, A'CONHA or A'SO<sub>2</sub>NHA; Z' = Z in which B has an oxo group directly attached to the N atom; x, y = 0 or 1; and X<-> = a mono- or divalent anion; provided that: (A) when Z is of formula (i), then: (a) D is attached to the nitrogen atom when x = 0; (b) D is attached to E, G, J or L when x = 1; and (c) y can be 1 only if R<sub>9</sub> is bonded to the ring N atom when E, G, J and L are all C or if at least one of E, G, J and L is a N atom to which R<sub>9</sub> is bonded; (B) when Z is of formula (ii), then: (a) D is attached to the nitrogen atom when x = 0; (b) D is attached to E, G, J or L when x = 1; and (c) y can be 1 only if at least one of E, G, J, L and M is a divalent atom and R<sub>9</sub> is bonded to the ring N atom; (C) when Z is a group of formula (iii), then: (a) D is attached to the N atom bearing R<sub>10</sub> and R<sub>11</sub> when x = 0; and (b) D is attached to a C atom of a saturated ring formed by R<sub>10</sub> and R<sub>11</sub> when x = 1; (D) at least one Z group is present; (E) when R<sub>4</sub>, R<sub>5</sub>, R<sub>4'</sub>, R<sub>5'</sub>, R<sub>7</sub>, R<sub>8</sub>, R<sub>7'</sub> and/or R<sub>8'</sub> is a Z group in which D has an oxo group, this oxo group is not directly attached to the N atom of NR<sub>4</sub>R<sub>5</sub>, NR<sub>4'</sub>R<sub>5'</sub>, NR<sub>7</sub>R<sub>8</sub> or NR<sub>7'</sub>R<sub>8'</sub>; and (F) when R<sub>4</sub>, R<sub>5</sub>, R<sub>4'</sub>, R<sub>5'</sub>, R<sub>7</sub>, R<sub>8</sub>, R<sub>7'</sub> and/or R<sub>8'</sub> is a bond to a B group having an oxo group, this oxo group is not directly attached to the N atom of NR<sub>4</sub>R<sub>5</sub>, NR<sub>4'</sub>R<sub>5'</sub>, NR<sub>7</sub>R<sub>8</sub> or NR<sub>7'</sub>R<sub>8'</sub>. Independent claims are also included for the following: (1) a composition for oxidation dyeing of keratinic fibers, containing at least one compound (I); (2) a method for oxidation dyeing of keratinic fibers, comprising applying at least one composition as in (1) to the fibers for a time sufficient for the desired color to develop, either in air or with the aid of an oxidizing agent; and (3) a kit comprising a compartment containing the composition of (1) and a compartment containing an oxidizing composition.

## Abstract (fr)

L'invention a pour objet de nouvelles orthophénylènediamines di-benzéniques comportant au moins un groupement cationique Z, Z étant choisi parmi des chaînes aliphatiques quaternisées, des chaînes aliphatiques comportant au moins un cycle saturé quaternisé et des chaînes aliphatiques comportant au moins un cycle insaturé quaternisé, leur utilisation à titre de base d'oxydation, de coupleur ou de colorant auto-oxydable pour la teinture d'oxydation des fibres kératiniques, les compositions tinctoriales les contenant, ainsi que les procédés de teinture d'oxydation les mettant en oeuvre.

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- [A] US 5139532 A 19920818 - CHAN A C [US], et al
- [A] FR 2520358 A1 19830729 - OREAL [FR]
- [PA] FR 2766179 A1 19990122 - OREAL [FR]
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